REMARKS

Claim status

Claims 1-3, 6-7, 11, 17-18, 21-22, 25 and 27 were pending in the case at the time of the current Office Action. Previously, claims 4-5, 8-10, 12-16, 19-20, 23-24, and 26 were canceled. No claims are amended herein. Claims 1-3, 6-7, 11, 17-18, 21-22, 25, and 27 are currently pending in the application.

Section 112 Rejections

In the current Office Action, the Examiner rejected claims 3, 11, and 27 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner states that, as to claims 3 and 11, the specification does not provide support for "two or more floating atrial electrodes and two or more ventricular electrodes of said ventricular electrode line." The Examiner further states that, as to claim 27, the specification does not provide support for the "atrial wall electrode" and the "floating atrial electrodes" being "about the same physical size".

Applicants respectfully traverse the foregoing rejections in view of the above pending claims and for reasons set forth hereafter.

Fig. 4 of the present application shows four electrodes placed in the atrium of the heart and two electrodes placed in the ventricle of the heart. The two left-hand atrial electrodes that are vertically in line with each other in Fig. 4 belong to the VDD-electrode line, whereas the two electrodes on the right hand side of the atrium belong to a conventional atrial electrode line that has a J-shape. Furthermore, Fig. 4 and paragraphs [0032] and [0033], of the present application, show that the ventricular electrode line includes at least one floating atrial electrode and at least one ventricular electrode.

[0032] In accordance with the present proposal, based on those considerations, the options of floating sensing and wall-located stimulation are combined in a novel pacemaker arrangement. FIG. 4 shows the principle of the proposed AV-sequential cardiac pacemaker with the SPT-switch mode for optimization of early atrial signal perception (floating atrial ring electrodes), prevention by conventional stimulation (wall-located atrial electrode) and termination of atrial

tachycardias or auricular fibrillation by temporary high-frequency floating stimulation (floating atrial ring electrodes).

[0033] The combination of a VDD-electrode with an additional atrial wall-located electrode affords the following possible options:

Also, paragraph [0017] of the present application provides evidence of two or more floating atrial electrodes by stating, "...floating electrodes of a VDD-electrode in the central right atrium...". Furthermore, paragraph [0022] of the present application provides evidence of two or more floating atrial electrodes by stating, "...ring electrodes floating in the right atrium...". Also, paragraph [0028] and Fig. 3 refer to floating electrodes E1 and E2, shown in the high right atrium (HRA). There are numerous other references to atrial "floating electrodes" in the present application, and the plural term "floating electrodes" clearly refers to two or more.

Furthermore, it is well known in the art that a VDD electrode line (i.e., a ventricular electrode line) may provide two or more ventricular electrodes, as shown in Fig. 4 of the present application.

With regard to the atrial wall electrode and the floating atrial electrodes being about the same physical size, the atrial wall electrode and the floating atrial electrodes shown in Fig. 4 and described in the specification of the present application appear to be about the same physical size with respect to each other and with respect to the gross dimensions of the heart shown in Fig. 4. Therefore, Applicants do not regard such a claimed attribute to be outside of the scope of the present application. Furthermore, there is nothing in the known art to suggest that such an atrial wall electrode and floating atrial electrodes could not be of about the same physical size.

Therefore, in view of at least the foregoing, it is respectfully submitted that claims 3, 11 and 27 do comply with the written description requirement of 35 U.S.C. 112, first paragraph, and that claims 3, 11, and 27 define allowable subject matter. Applicant respectfully requests that the rejection of claims 3, 11 and 27 under 35 U.S.C. 112, first paragraph, be removed.

In the current Office Action, the Examiner rejected claims 1-3, 6-7, 11, 17-18, 21-22, 25 and 27 under 35 U.S.C. 112, second paragraph, as being indefinite. The Examiner states that it is unclear what the Applicant considers to be the "floating atrial electrode line" and if the "at least one floating atrial electrode line" also possesses a floating atrial electrode in addition to the wall electrode.

Applicants respectfully traverse the foregoing rejections in view of the above pending claims and for reasons set forth hereafter.

Fig. 4 of the present application shows four electrodes placed in the atrium of the heart and two electrodes placed in the ventricle of the heart. The two left-hand atrial electrodes that are vertically in line with each other in Fig. 4 belong to the VDD-electrode line (i.e., ventricular electrode line), whereas the two electrodes on the right hand side of the atrium belong to a conventional atrial electrode line that has a J-shape. One of the electrodes of the atrial electrode line is a wall electrode (shown being against the atrial wall), and the other electrode of the atrial electrode line is shown to be floating within the atrium. Therefore, the conventional atrial electrode line having the J-shape as shown in Fig. 4 of the present application is the "floating atrial electrode line" which does indeed include a floating atrial electrode as shown.

Therefore, in view of at least the foregoing, it is respectfully submitted that claims 1-3, 6-7, 11, 17-18, 21-22, 25 and 27 are not indefinite under 35 U.S.C. 112, second paragraph, and that claims 1-3, 6-7, 11, 17-18, 21-22, 25 and 27 define allowable subject matter. Applicant respectfully requests that the rejection of claims 1-3, 6-7, 11, 17-18, 21-22, 25 and 27 under 35 U.S.C. 112, second paragraph, be removed.

Section 103 Rejections

In the current Office Action, the Examiner rejected claims 1-3, 6-7, 11, 17-18, 21-22, 25 and 27 under 35 U.S.C. 103(a) as being unpatentable over Alt et al. (U.S. Patent 6,370,427), hereinafter Alt.

Applicants respectfully traverse the foregoing rejections in view of the above pending claims and for reasons set forth hereafter.

Independent claim 1 recites a cardiac pacemaker arrangement comprising:

at least one floating atrial electrode line having an atrial wall electrode;

a ventricular electrode line (VDD-electrode line) having at least one floating atrial electrode for stimulation, and at least one ventricular electrode; and

at least one circuit adapted to:

evaluate atrial signals perceived by said electrodes, and

switch over from a first mode, for effecting atrial myocardium stimulation by said atrial wall electrode, to a second mode, for effecting atrial myocardium stimulation by said at least one floating atrial electrode, upon perceiving atrial signals that are evaluated as being high-frequency irregularities such as auricular fibrillation or atrial tachycardias as on the basis of inadmissibly high signal frequencies.

It is respectfully submitted that Alt does not teach, suggest, or render obvious the claimed invention of independent claim 1. The Examiner argues that providing a floating atrial electrode on a ventricular lead would be obvious because Alt shows an electrode arrangement with a particular atrial electrode lead. However, Applicant disagrees with the Examiner on this point because a floating atrial electrode on a ventricular electrode lead does not replace the atrial electrodes on the atrial electrode lead. Instead, in the claimed invention of claim 1, the floating atrial electrode on the ventricular electrode lead is provided in addition to the atrial electrodes on the atrial electrode lead. Claim 1 expressively states that the arrangement comprises at least one floating atrial electrode line having an atrial wall electrode and, in addition, a ventricular electrode line providing a floating atrial electrode. Providing both an atrial electrode line and a ventricular electrode line that features an additional atrial electrode is contrary to the Examiner's argument and, therefore, should be considered non-obvious.

Furthermore, Alt does not teach or suggest the configuration of Fig. 4 of the present application. The ventricular electrode line (VDD-electrode line) of claim 1 has a floating atrial electrode and a ventricular electrode. The electrode configuration of claim 1 is disclosed in Fig. 4 of the present application and in the description referring to Fig. 4 in paragraph [0032] and [0033] of the present application.

With respect to the Examiner's rejection, Alt only discloses a ventricular electrode line that has one electrode in the ventricle. The present application's electrode configuration is neither disclosed nor suggested by Alt.

The claimed arrangement of claim 1 comprises two electrode lines, an atrial electrode line including an atrial wall electrode and a ventricular electrode line including a floating atrial electrode. In a normal (first) mode, atrial stimulation is performed via the atrial wall electrode of the atrial electrode line. In the case of atrial signals indicating high-frequency irregularities, atrial stimulation (not atrial defibrillation) is performed via the floating atrial electrode on the ventricular electrode line. Such an arrangement is neither known from Alt nor made obvious by

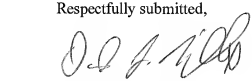
Alt, since Alt does not show a ventricular electrode line providing a floating atrial electrode. (emphasis added), and Alt does not teach or suggest the situation where, in the case of atrial signals indicating high-frequency irregularities, atrial stimulation (not atrial defibrillation) is performed via the floating atrial electrode on the ventricular electrode line.

Furthermore, the electrode as shown in Alt is a defibrillation electrode and not a stimulation electrode. The drawings of the present application (particularly Fig. 4) do not show any large surface (coil) electrode that would be used for defibrillation but, instead, show only small surface stimulation electrodes that are of approximately the same size.

Therefore, in view of at least the foregoing, it is respectfully submitted that independent claim 1 is not unpatentable over Alt, and it is respectfully submitted that independent claim 1 defines allowable subject matter. Also, since claims 2-3, 6-7, 11, 17-18, 21-22, 25 and 27 depend either directly or indirectly from claim 1, it is respectfully submitted that claims 2-3, 6-7, 11, 17-18, 21-22, 25 and 27 define allowable subject matter as well. Applicant respectfully requests that the rejection of claims 1-3, 6-7, 11, 17-18, 21-22, 25 and 27 under 35 U.S.C. 103(a) be removed.

Accordingly, the applicant respectfully requests reconsideration of the rejections based on at least the foregoing. After such reconsideration, it is urged that allowance of all pending claims will be in order.

Respectfully submitted,



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